

transmission system, and each transmission system sends a periodic system message identifying the transmission system, said radio paging unit comprising:

means for receiving the system messages of at least one of the transmission systems when the paging unit is located in the coverage area of said one of said transmission systems, and receiving the page messages sent from the transmission system registered to the paging unit when the paging unit is located in the coverage area of the transmission system registered to the paging unit;

means for determining when the paging unit receives at least one of the system messages sent by one of said transmission systems different from the transmission system registered to the paging unit; and

means, responsive to said determining means, for sending at least the information uniquely identifying the transmission system from said received system message sent by one of said transmission systems different from the transmission system registered to the paging unit, in which said paging unit represents a one-way wireless paging unit.

Remarks

The Abstract has been amended to the proper word length as requested by the Examiner.

Claims 1-12, 18-31, 33-42, 45-51, and 53-61 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,924,042 (Sakamoto et al.) "Sakamoto". Claims 1, 50, 53, and 57 are amended to describe one or more of the paging units as representing one-way paging units. Other amendments made to these claims were to clarify the invention, rather than to overcome the rejection. Sakamoto describes a mobile communication system using only two-way mobile devices, i.e., both wireless receiving and transmitting, such as automobile telephones, portable telephones, wireless telephones, or wireless LAN (see column 1, lines 5-8). This is further pointed out by the Examiner on page 17 of the Office Action at item 47. Moreover, Sakamoto's mobile communication system cannot enable registration of one-way paging units, since it relies on transmitting information from mobile stations to base stations. Such wireless transmitting is not possible in one-way paging units. Further, two-way communication of mobile units is clearly evident by operation

diagrams of FIGS. 12-40 of Sakamoto (see direction of arrows between mobile terminals and base stations).

The present invention solves a problem of registration of one-way paging units for efficient delivery of page messages, and unlike Sakamoto, the present invention can be applied to both one-way paging units and two-way paging units. Sakamoto does not address one-way mobile device registration, or registration which could work in the same system with both one-way and two-way mobile devices.

Accordingly, Claims 1, 50, 53, and 57 are not anticipated by Sakamoto, and withdrawal of the rejection of these claims and their respective dependent Claims 2-12, 18-24, 28-31, 33-36, 38-42, 45-49, 51, and 59-61 is requested.

In regard to the 35 U.S.C. §102(e) rejection of Claims 25-27, no access number of Claim 25 is provided in any weak electric field intensity (see column 18, lines 46-58) or notice signal of Sakamoto (see column 22, lines 3-13), no mobile station in Sakamoto uses any access number of Claim 26 that was provided in a notice to the mobile station by which to connect to a base station, and no such access number is present in Sakamoto representing a telephone number of Claim 27.

In regard to the 35 U.S.C. §102(e) rejection of Claim 37, Claim 37 describes group messaging in accordance with a group database, however, Sakamoto does not describe any group messaging, and the citation by the Examiner to FIG. 9, and column 21, line 34 to column 22, line 65, on page 14 of the Office Action at item 37 does not involve group messaging.

In regards to the 35 U.S.C. §102(e) rejection of Claims 54-56, Claims 54 and 55 cannot be anticipated by Sakamoto as such claims describe time periods and resending page messages during time periods which are clearly absent in Sakamoto. Claim 56 depends on Claim 55.

In regard to the 35 U.S.C. §102(e) rejection of Claim 58, Claim 58 is amended to describe the radio paging unit as representing a one-way paging unit, which is neither described, nor suggested, by Sakamoto. Additional amendments to Claim 58 were made to clarify the invention, rather than to overcome the rejection.

For these reasons, Applicant believes that Claims 25-27, 37, 54-56, and 58 are also not anticipated by Sakamoto, and withdrawal of the rejection of these claims is requested.

Claims 13-17, 43-44 and 52, were rejected under 35 U.S.C. §103(a) as unpatentable over Sakamoto in view of U.S. Patent No. 6,418,305 (Neustein). Claims 13-17 and 43-44 depend on base Claim 1, and Claim 52 depends on base Claim 50, and for reasons argued earlier Claims 1 and 50 are not described or even suggested by Sakamoto. Neustein describes a paging system which fails to disclose that absent in Sakamoto. In Neustein, a pager can power down during frames of wireless transmissions to the pager where no transmissions can be designated for the pager to receive, and the pager is powered up during the frame designated for the pager for receipt of transmissions (see column 7, line 61, to column 8, line 13). As Neustein states at column 7, lines 62-66, "A pager belonging to a particular group can only receive messages during the particular time interval that the frame is being transmitted. During the transmission of the other frames, the pagers of this group can all be powered down." Further, at column 18, lines 23-31, "To conserve energy in a pager apparatus, each pager is activated only for a short period of time within a specified time interval... Each profile at the central transmitting station includes a time interval to be assigned to every pager... the transmitter will only transmit paging messages to a given pager apparatus during the time interval designated to that pager apparatus." There is no motivating reason in Neustein's pager to record time periods during the interval when powered down, as the Examiner contends, when no transmissions could be received during such periods. Moreover, there is no motivating reason in Neustein to support resending of messages during powered down time periods, since there would be no messages to resend as no messages were sent to the pager during such periods. The combination of Sakamoto and Neustein clearly does not describe, or is even suggestive, of Claim 13-17, 43-44 and 52. Thus, Claims 13-17, 43-44, and 52 are not obvious in view of Sakamoto or Neustein, either alone, or in combination, and Applicant request withdrawal of the rejection of these claims.

Claim 32 was rejected under 35 U.S.C. §103(a) as being unpatentable over Sakamoto in view of U.S. Patent No. 6,389,114 (Dowens et al.). Claim 32 depends on base Claim 1, which for reasons argued earlier is patentable over Sakamoto. Dowens et al. does not disclose that absent in Sakamoto. Withdrawal of the rejection of Claim 32 is therefore requested.

Amendments to Claims 47 and 55 were made to clarify the invention rather than to overcome the rejection of such claims.

It is believed that the application is in condition for allowance. A petition for a two-month extension of time is enclosed.

Respectfully submitted,

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Enclosures: Appendix with Marked-up Version of Amended Claims;
Certificate of First Class Mail; and
Petition for Extension of Time with a Check for \$205.00.

APPENDIX

Marked-up Version of Amended Claims

1. (amended) A system for providing page messages to radio paging units over a wide area through a plurality of transmission systems in which each of said transmission systems are associated with a predefined coverage area in said wide area, said system comprising:

a controller having memory storing a routing database registering each of said paging units with one of said transmission systems, in which said controller routes page messages received by said system to each of said paging units through one of said transmission systems to which the paging unit is registered in accordance with said routing database, wherein the transmission system to which each of the paging units is registered represents the transmission system registered to the paging unit;

a plurality of transmission systems, each of said transmission systems having means for sending page messages received from the controller to paging units, and means for sending periodically a system message having at least information which uniquely identifies the transmission system;

a plurality of paging units for receiving the system messages of at least one of the transmission systems when located in the associated coverage area of said one transmission system and receiving the page messages from the transmission system registered to the paging unit when the paging unit is located in the coverage area of the transmission system registered to the paging unit, in which one or more of said plurality of paging units represent one-way paging units;

each of said paging units having means for determining when the paging unit receives at least one of the system messages sent by one of said transmission systems different from the transmission system registered to the paging unit, and means, responsive to said determining means, for sending to the controller at least the information uniquely identifying the transmission system from said received system message sent by one of said transmission systems different from the transmission system registered to the paging unit; and

said controller having means, responsive to said sending means of each of said paging units, for updating the registration of the paging unit in the routing database to

one of the transmission systems in accordance with the information received from the sending means of the paging unit, and sending to the paging unit at least information representing the updated transmission system registered to the paging unit, in which the paging unit receives, and operates the determining means of the paging means responsive to, the information representing the updated transmission system.

47. (amended) The system according to Claim 1 wherein one or more [each] of said plurality of paging units represent [one of one-way or] two-way paging units.

50. (amended) A system for providing page messages to radio paging units over a wide area through a plurality of regional transmission systems, said system comprising:

means for routing page messages to each of said paging units through one of said transmission systems to which the paging unit is registered, each of said paging units being registered to one of said transmission systems;

a plurality of transmission systems having coverage areas in said wide area in which each of said transmission systems sends page messages received from the routing means [controller] to paging units located in their associated coverage area and sends a periodic system message having information which uniquely identifies the transmission system to paging units located in their associated coverage area;

a plurality of paging units capable of receiving page messages and system messages when located in the coverage area of at least one of the transmission systems, in which each of said paging units, when receiving at least one of the system messages sent from one of said transmission systems different from the transmission system to which said paging unit is registered, transmits to the routing means [controller] at least the information from the received system message identifying the transmission system, in which one or more of said plurality of paging units represent one-way paging units; and

said routing means in response to each of said paging units comprises means for re-registering the paging unit to one of the transmission systems whose coverage area the paging unit has entered in accordance with the information [received from] transmitted from the paging unit.

53. (amended) A method for providing page messages to radio paging units over a wide area through a plurality of regional transmission systems comprising the steps of:

registering each of said paging units to one of said transmission systems, in which one or more of said paging units represent one-way paging units;

routing page messages to each of said paging units through one of said transmission systems to which the paging unit is registered;

sending routed page messages by each of the transmission systems to the paging units located in [their associated] coverage areas associated with said transmission systems;

sending a periodic system message from each of said transmission systems having information which uniquely identifies the transmission system to [any] one or more of said paging units located in [their associated] the coverage area of the transmission system;

receiving [the] at each of the paging units page messages sent [to each paging unit] from the transmission system registered to the paging unit when located in the coverage area of the transmission system registered to the paging unit;

receiving at least one system message [messages] at each of the paging units when the paging unit is located in the coverage area of at least one of the transmission systems;

re-registering each of the paging units to a different one of said transmission systems from the transmission system the paging units is registered when the paging unit [receive] receives at least one of the system messages sent from one of said transmission systems different from the transmission system to which said paging unit is registered; and

sending to each of said paging units the transmission system to which the paging unit is re-registered.

55. (amended) A method for routing page messages to paging units through one or more transmission systems comprising the steps of:

receiving page messages, each of said page message having message data and identifying information of one or more of the paging units to receive the page message;

storing in at least one first database associating each paging unit to one of the transmission systems;

routing each page message received to one of the transmission systems in accordance with said identifying information of the page message and said first database;

storing in at least one second database information about each page message routed representing at least the paging unit associated with the page message in accordance with the identifying information of the page message, the message data of the page message, and the time the page message was routed;

maintaining in at least one of the paging units one or more records of certain time periods; and

resending page messages to at least one of the paging units from said second database any message sent to the paging unit which having a time routed during said certain time periods.

57. (amended) A controller for routing messages to radio paging units in a wide area paging system having one or more transmission systems with coverage areas in the wide area, in which the radio paging units can detect when they have moved into a new coverage area of one of the transmission systems and communicate to the controller information related to the transmission system of the new coverage area, said controller comprising:

memory storing a routing database registering each of said paging units with one of said transmission systems;

means for routing page messages to each of said paging units through one of said transmission systems to which the paging unit is registered in accordance with said routing database, in which one or more of said plurality of paging units represent one-way paging units; and

means, responsive to the receiving a communication from the paging unit with information related to a coverage area, for updating the registration of the paging unit in the routing database to one of the transmission systems in accordance with the information received from [the sending means of] the paging unit, and sending to the

paging unit at least information representing the updated transmission system registered to the paging unit.

58. (amended) A radio paging unit for receiving messages from one or more [regional] transmission systems having coverage areas [in a wide area] in which each radio paging unit is registered to one of the transmission systems for receiving paging [message] messages from the transmission system, and each transmission system sends a periodic system message identifying the transmission system, said radio paging unit comprising:

means for receiving the system messages of at least one of the transmission systems when the paging unit is located in the [associated] coverage area of said one of said transmission systems, and receiving the page messages sent from the transmission system registered to the paging unit when the paging unit is located in the coverage area of the transmission system registered to the paging unit;

means for determining when the paging unit receives at least one of the system messages sent by one of said transmission systems different from the transmission system registered to the paging unit; and

means, responsive to said determining means, for sending [to the controller] at least the information uniquely identifying the transmission system from said received system message sent by one of said transmission systems different from the transmission system registered to the paging unit, in which said paging unit represents a one-way wireless paging unit.